Enabling the Transition of CPC Products to GIS Format

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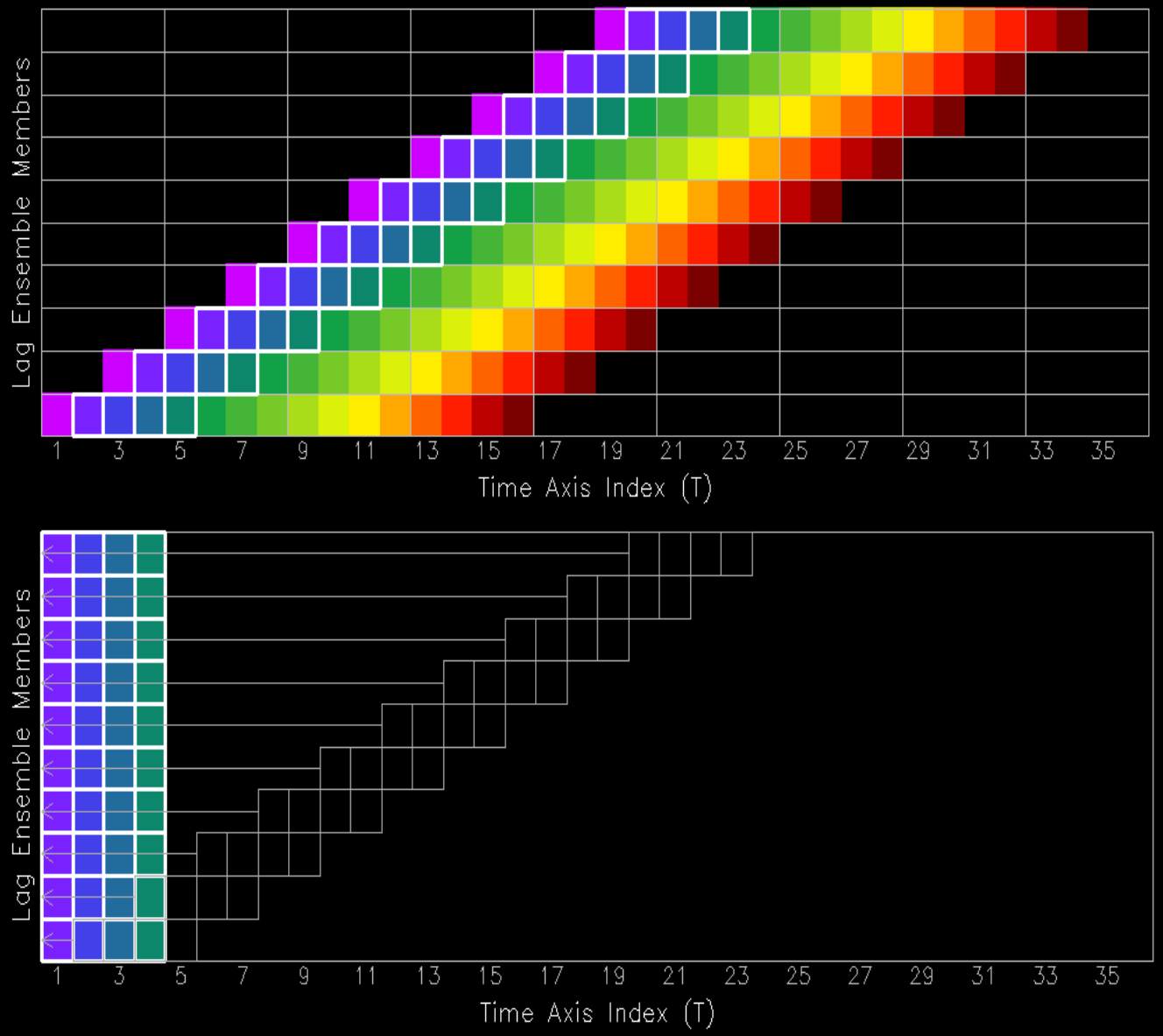
About the Project

- The GrADS software package was enhanced
  - New analysis capabilities for ensemble data sets
  - New output formats for use with GIS tools
- CPC enriched its suite of climate monitoring, assessment, and forecast products by providing them in GIS format.

Enhanced Analysis Capability

Diagonal Slicing Through a Set of Lag Ensembles



Create GeoTIFF with GrADS

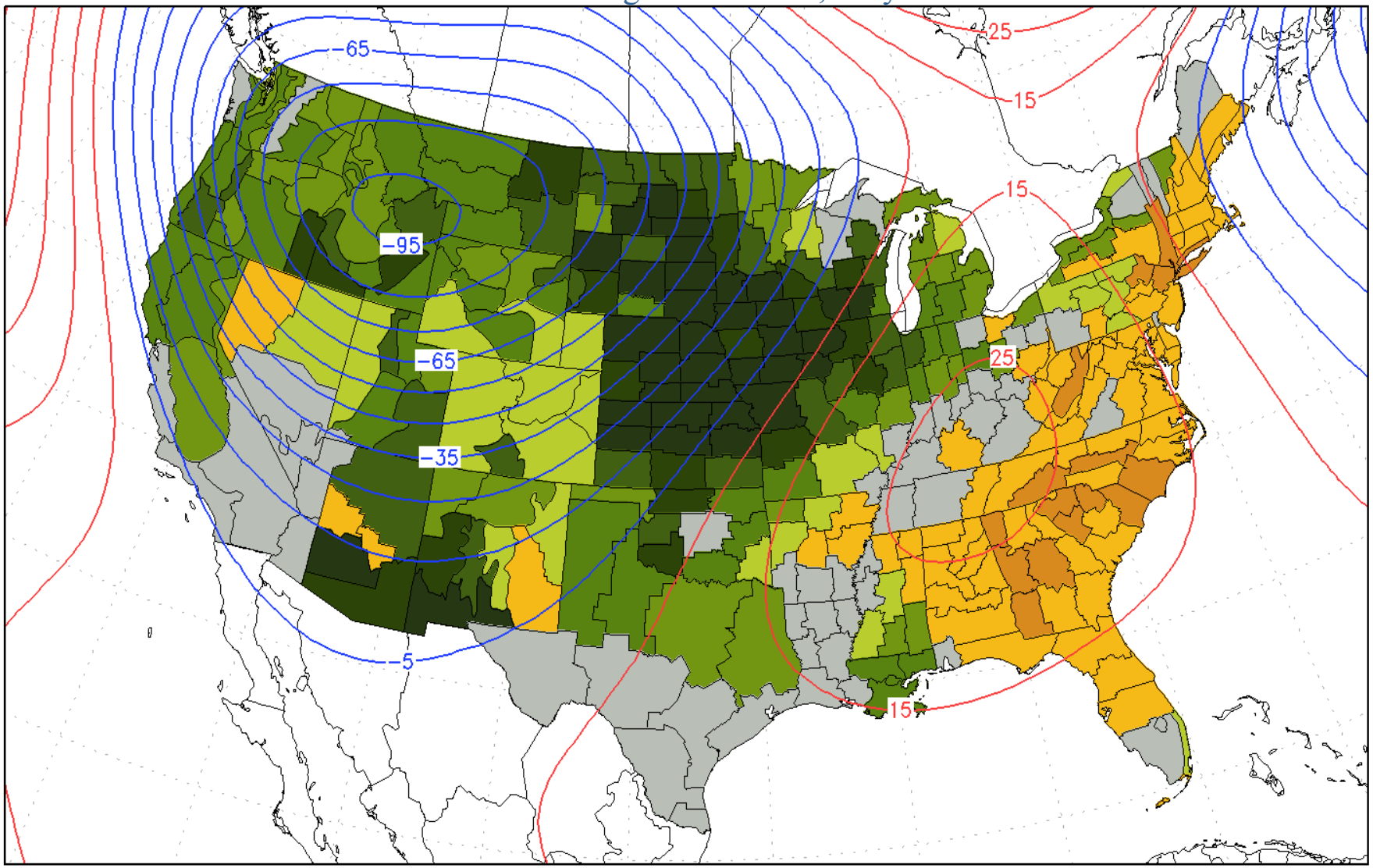
- Write any gridded GrADS expression as a GeoTIFF file
  - georegistered raster image
  - control colors, levels, precision, missing value
  - for display in GIS tools (e.g. ArcMap, Qgis)

Access Shapefiles with GrADS

- Query the contents of a shapefile
  - get #vertices and boundaries of each element
  - list all attributes
- Draw the contents of a shapefile
  - control mark type, color, and size for points
  - control fill and outline colors for lines/polygons

GrADS Integrates GIS and Gridded Data Formats

Palmer Drought Severity Index in U.S. Climate Zones with 500mb Height Anomalies, July 1993



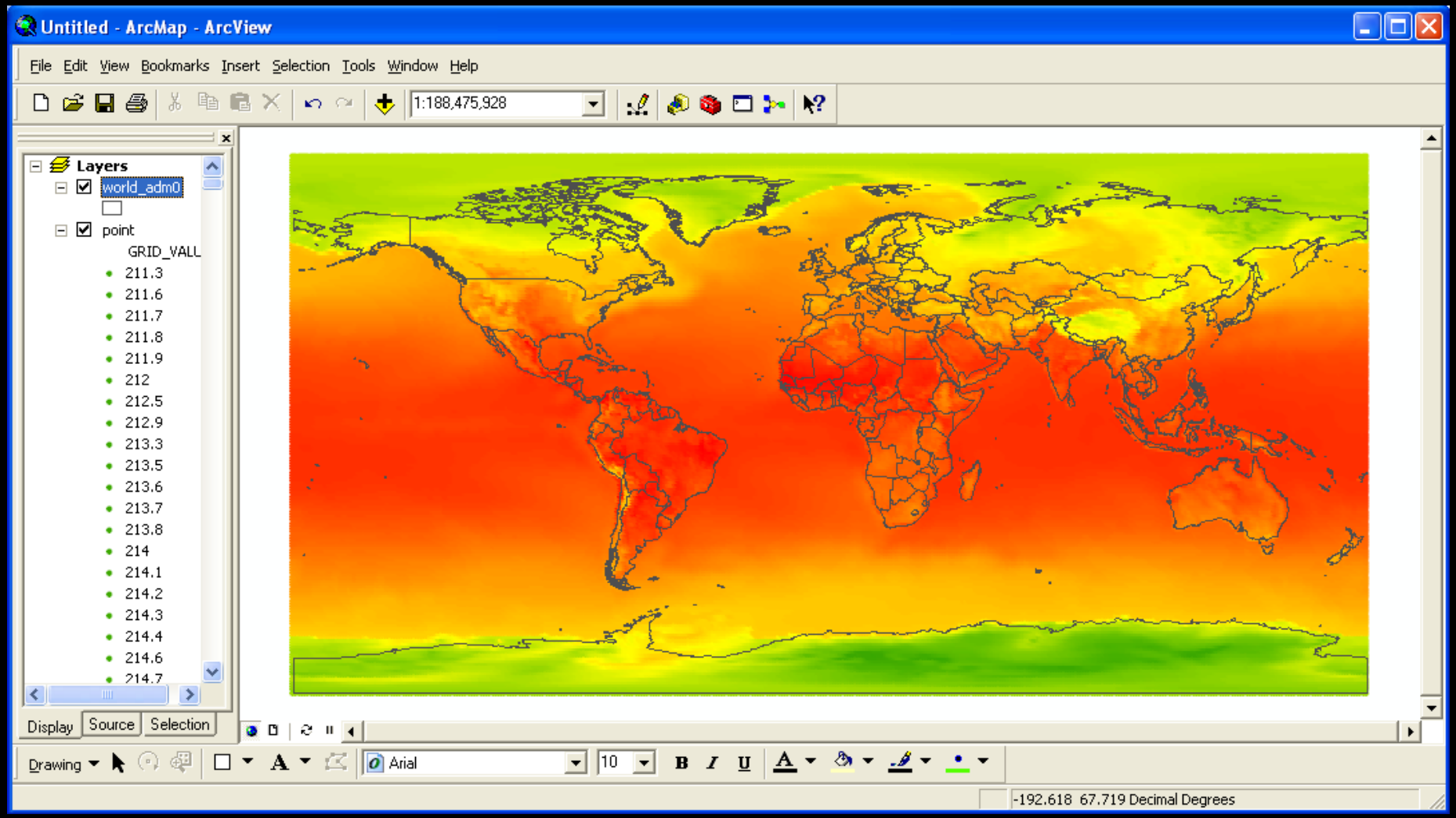
DRY −6 −5 −4 −3 −2 −1 1 2 3 4 5 6 WET

Extreme Severe Moderate Mild Normal Mild Moderate Severe Extreme

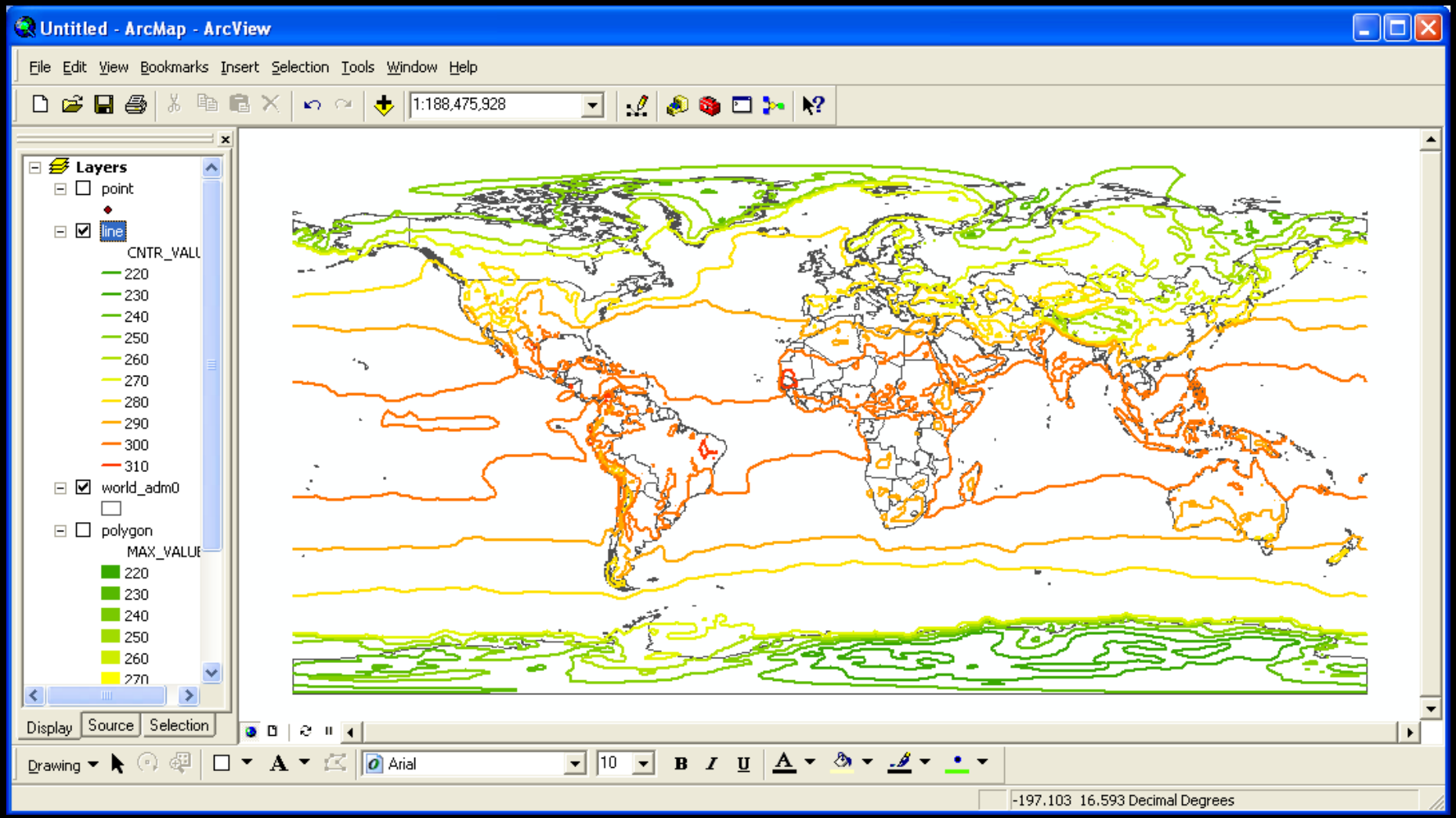
Create Shapefiles with GrADS

- Write any GrADS expression to a shapefile
  - gridded or station data
- Control shapefile type
  - Point – grid point or station location
  - Line – contours
  - Polygon – shaded contours
- Add attribute metadata
  - Numeric values or character strings

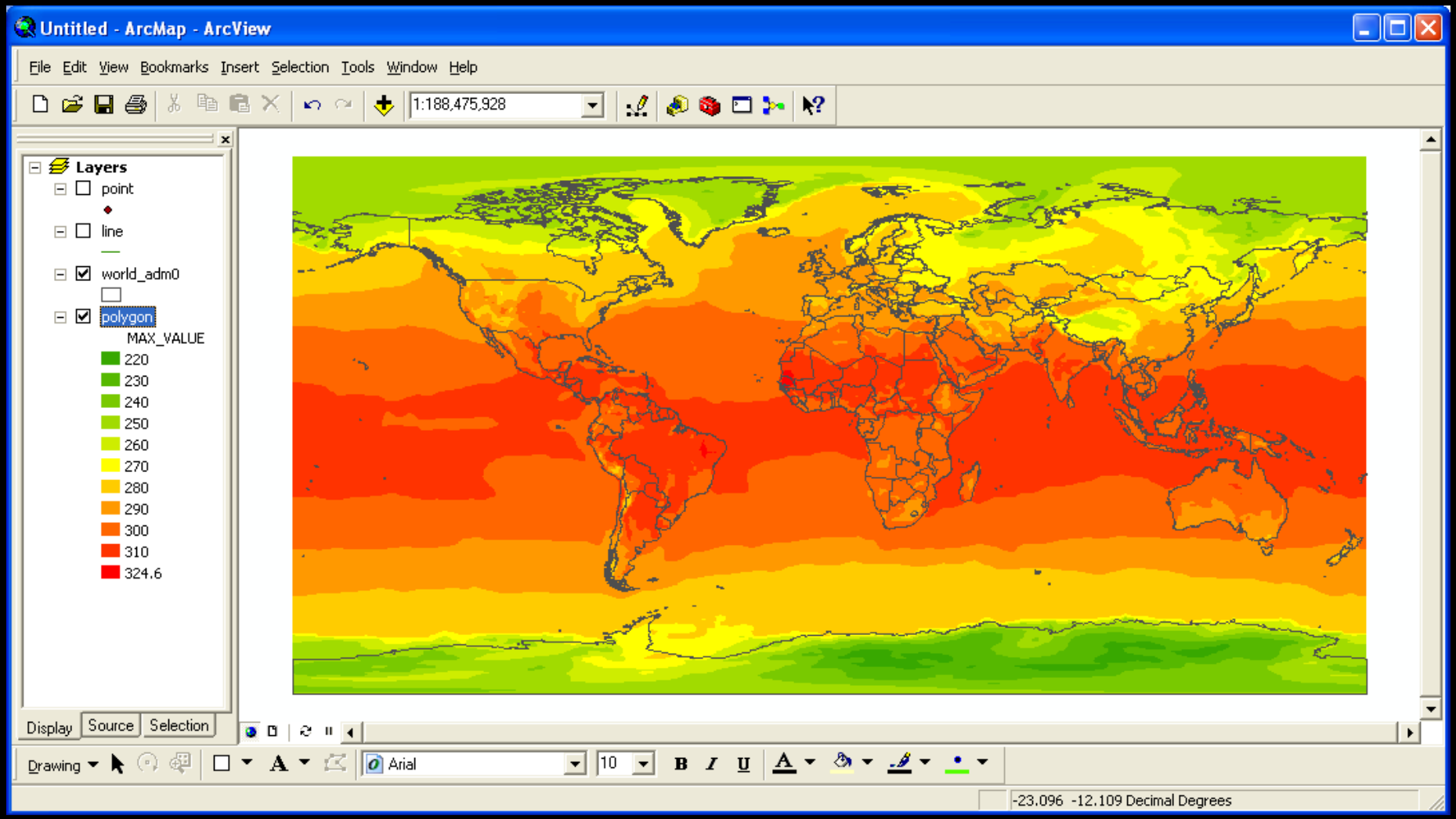
Shapefiles from GrADS in ArcMap
Grid Points



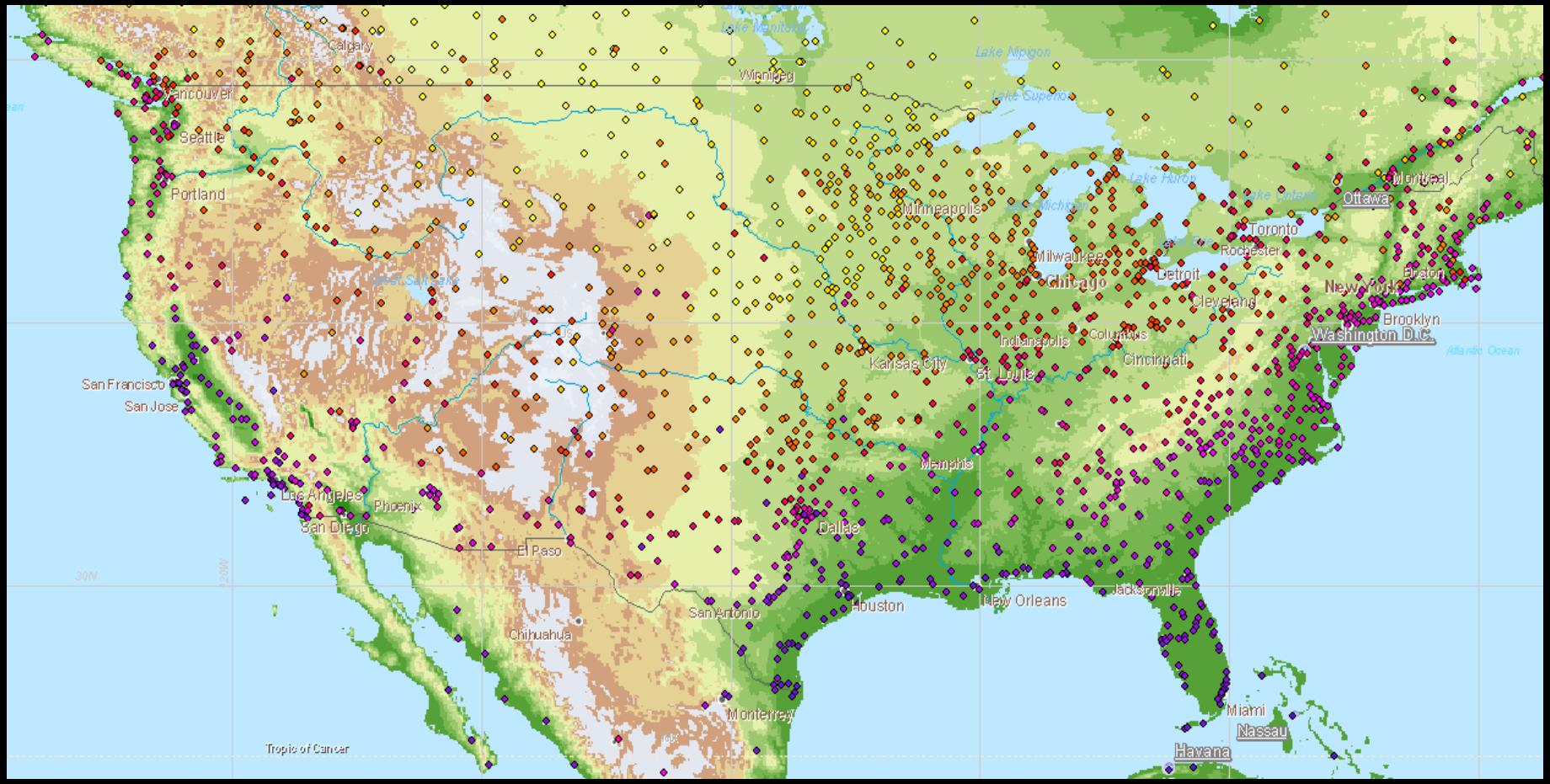
Shapefiles from GrADS in ArcMap
Contour Lines



Shapefiles from GrADS in ArcMap
Shaded Contours



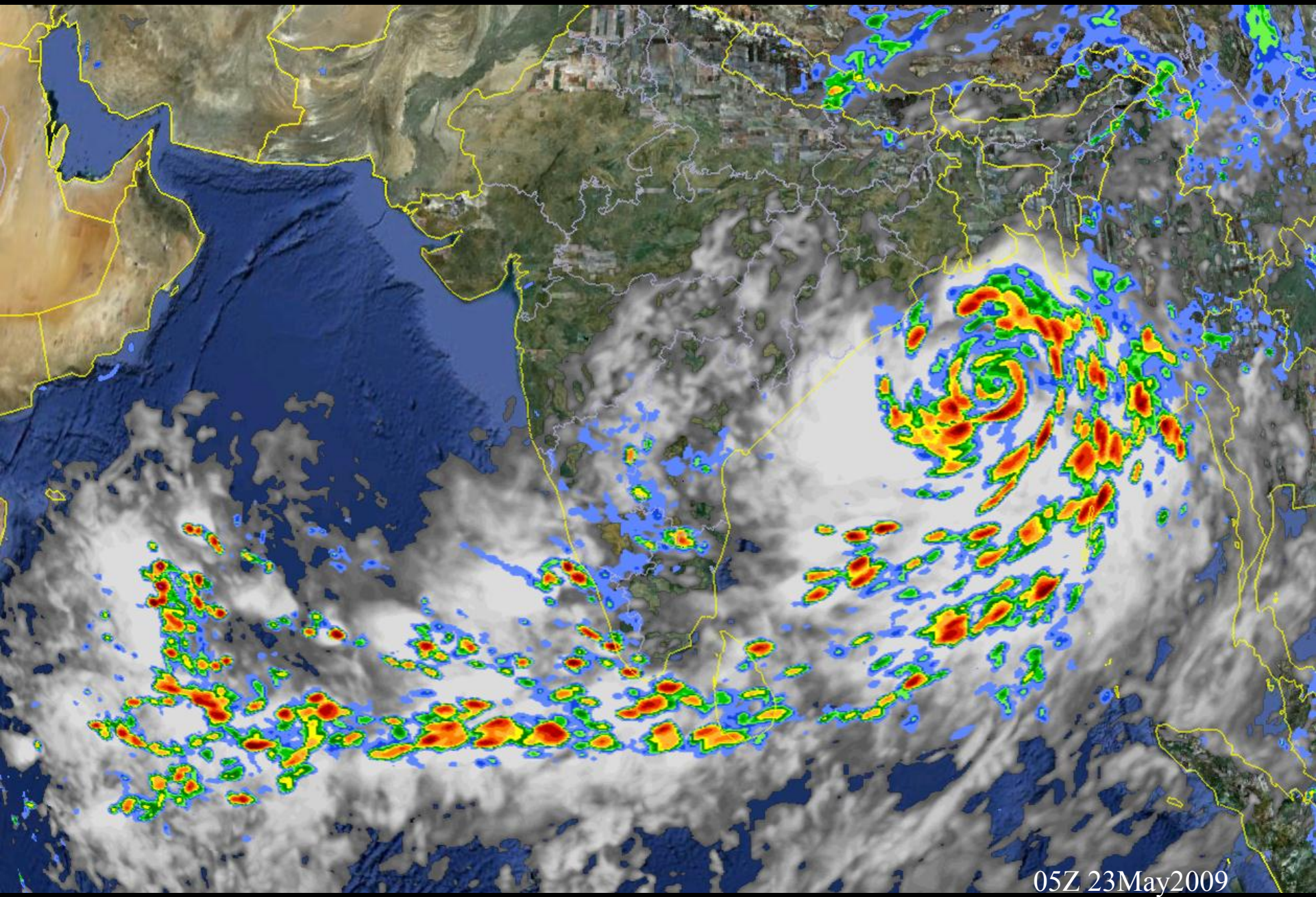
Shapefiles from GrADS in ArcMap
Station Data
(Dressed up with Topography, Political Boundaries, and City Names)



Create KMLwith GrADS

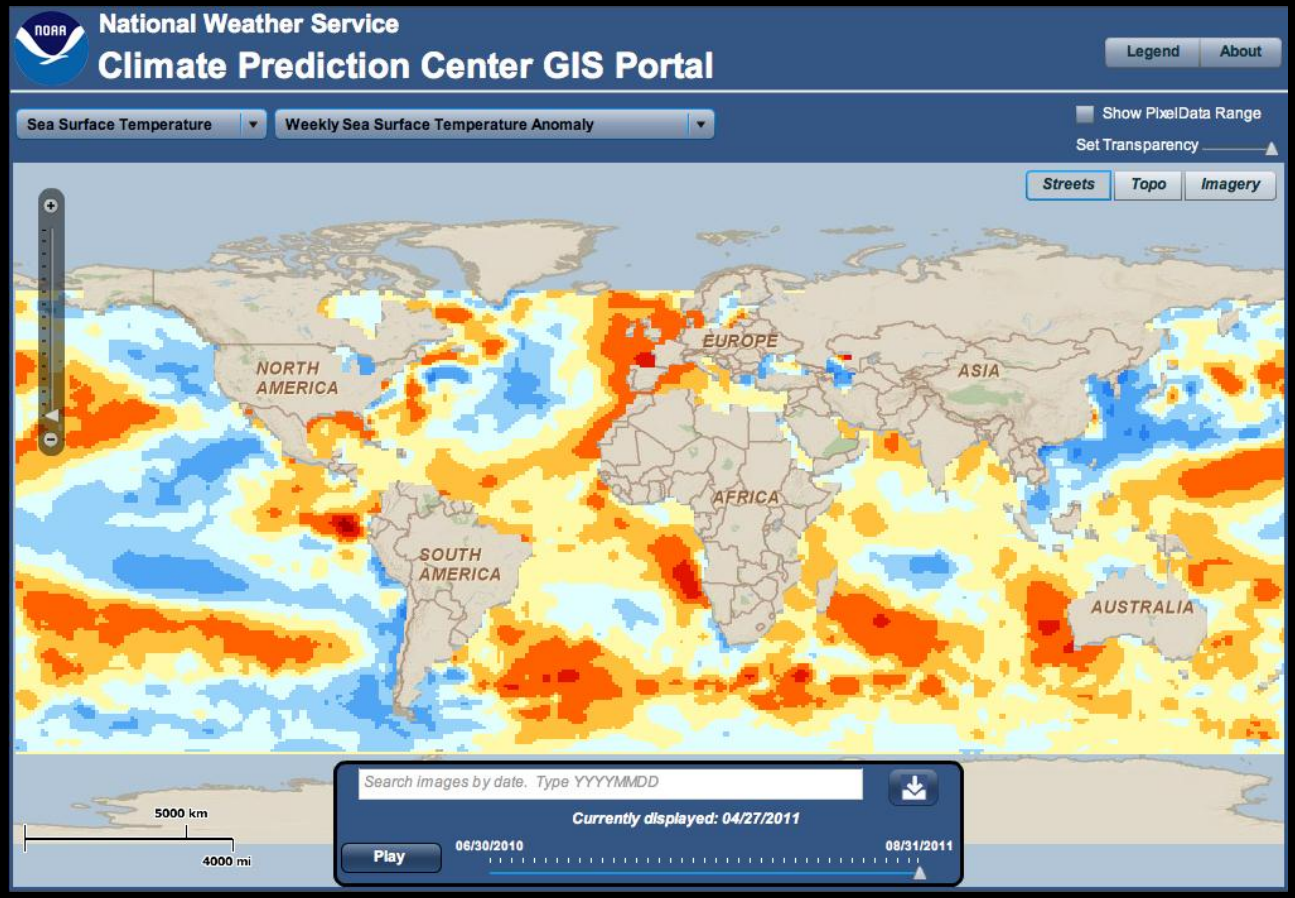
- Write any gridded GrADS expression to a KML
  - Intended for display in Google Earth
- Control KML type
  - Image – creates embedded raster image file
  - Line – contours
  - Polygon – shaded contours

OLR and Precip Data from GrADS in Google Earth



Climate Prediction Center's GIS Portal

The initial phase of interactive, web-based system to display CPC products together with supplemental geographical data



Summary

- Succeeded in bringing research to operations
- Work was targeted for CPC's needs
- Benefits climate research and GIS communities